

## THE GENUS NOTHRUS (ACARI, ORIBATIDA, NOTHRIDAE) FROM GUIZHOU, CHINA, WITH DESCRIPTION OF ONE NEW SPECIES

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**Abstract** In this paper, five species of Nothrus, including one new species Nothrus guiyangensis sp. nov. are described, and the key to them is provided. The type specimens are deposited in the Institute of Entomology, Guizhou University.

**Key words** Acari, Oribatida, Nothridae, Nothrus, new species

Oribatid mites of the genus Nothrus of the family Nothridae are common in litter, humus and soil, shrubby secondary forest. So far, about 77 species of this genus have been described in the world (Subías, 2004; Kutty, 2008). This family has been poorly studied in China and only 4 species have been recorded (Wang et al., 2002). In Guizhou, the genus Nothrus has never been reported.

In present paper, four species of Nothrus from Guizhou are reported: *N. asiaticus* Aoki et Ohnishi, 1974, *N. biciliatus* Koch, C. L., *N. borussicus* Sellnick, 1928, and *N. silvestris* Nicolet, 1855. A new species, *Nothrus guiyangensis* sp. nov. is described, and a key to species from Guizhou is also given. The specimens checked were cleared in lactic acid and preserved in 75% ethanol. Drawing was made with a phase contrast microscope with drawing tube (Leica, Germany). Measurements are given in micrometre ( $\mu\text{m}$ ). All specimens are deposited in the Institute of Entomology, Guizhou University.

### Nothrus Koch, 1839

Type-species: *Nothrus palustris* Koch, 1839

Rostrum with a median incision. Notogaster with a rough sculpture of foveolae; notogastral setae robust, mostly bacilliform or phylliform, terminal ones, especially  $h_2$  (less so  $p_1$  and  $h_1$ ) longer than others. Nine pairs of genital setae present, among them eight in a longitudinal row, ninth setae slightly laterally; aggenital seta absent, three pairs of adanal and two pair of anal setae present. Epimeral neotrichy varying, with general formula: (3-7) - (3-5) - (4-7) - (4-7). Legs mono- or triadactylous, seldom biadactylous.

This genus occurs worldwide.

### Key to Species of Nothrus from Guizhou, China

1. Legs tridactylous ..... 2

- Legs monodactylous ..... 4  
2. Setae  $h_2$  long, considerably longer than all other notogastral setae, reaching half length of body. Setae  $c_2$  located much nearer to  $c_3$  than to  $c_1$  ..... *Nothrus asiaticus* Aoki et Ohnishi  
Setae  $h_2$  similar to other notogastral setae. Setae  $c_2$  in nearly median position between  $c_1$  and  $c_3$  ..... 3  
3. All notogastral setae bacilliform, smooth, setae  $h_2$ ,  $p_1$  and  $p_2$  essentially longer than other notogastral setae. Epimeral setal formula: 7-5-7-6 ..... *Nothrus borussicus* Sellnick  
Notogastral setae largely spatulate, setae  $h_2$ ,  $p_1$  and  $p_2$  not longer than other notogastral setae.  $h_2$  about one and a half times longer than  $p_1$ . Epimeral setal formula: 6-5-4-4 ... *Nothrus biciliatus* Koch, C. L.  
4. Setae  $h_2$  long, setiform and pointed, reaching half length of body;  $p_1$  apophyses present ..... *Nothrus guiyangensis* sp. nov.  
Setae  $h_2$  thick, not reaching half length of body;  $p_1$  apophyses absent ..... *Nothrus silvestris* Nicolet

### 1 *Nothrus asiaticus* Aoki et Ohnishi, 1974

*Nothrus asiaticus* Aoki et Ohnishi, 1974: 153, figs 12-21.

**Specimens examined.** 8 specimens, Huaxi, Guiyang, Guizhou, 22 Mar 2008, coll HU Zhan-Yu.

**Distribution.** Guizhou, Jilin, Beijing, Hebei, Hubei, Fujian; Japan.

### 2 *N. biciliatus* Koch, 1841

*Nothrus biciliatus* Koch, 1841: 2.

*Nothrus biciliatus* Sellnick et Forsslund, 1955: 502, figs 33-35.

**Specimens examined.** 32 specimens, Huaxi, Guiyang, Guizhou, 22 Mar 2008, coll HU Zhan-Yu.

**Distribution.** Guizhou, Jilin, Beijing, Hebei, Anhui, Zhejiang, Fujian, Taiwan, Hongkong, Sichuan; Germany.

### 3 *N. borussicus* Sellnick, 1928

*Nothrus borussicus* Sellnick, 1928: 19.

*Nothrus borussicus* Sellnick et Forsslund, 1955: 500, figs 36-38.

**Specimens examined.** 30 specimens, Huaxi, Guiyang, Guizhou, 22 Mar 2008, coll HU Zhan-Yu.

**Distribution.** Guizhou, Jilin, Beijing, Hebei;

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## Holarctic Region.

**4** *N. silvestris* Nicolet, 1855

*Nothrus silvestris* Nicolet, 1855: 458, pl 7, fig 4.

Specimens examined 42 specimens, Huaxi, Guiyang, Guizhou, 22 Mar 2008, coll HU Zhan-Yu Distribution. Guiyang

Distribution. Guizhou, Jilin; Holarctic and Neotropical Regions

**5** *Nothrus guiyangensis* sp. nov. (Figs 1-13)

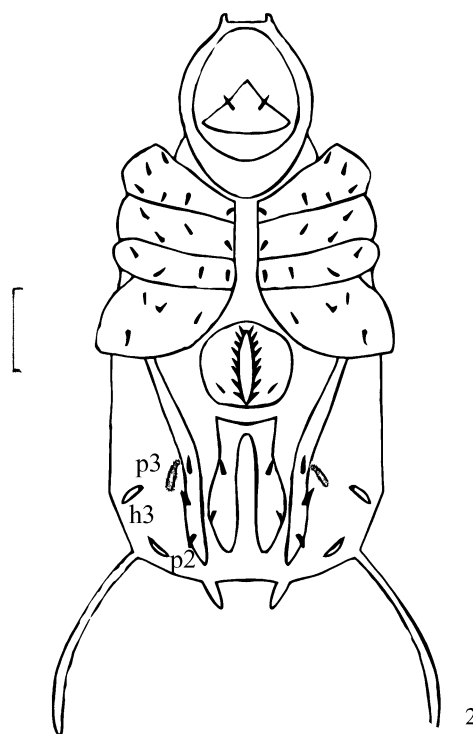
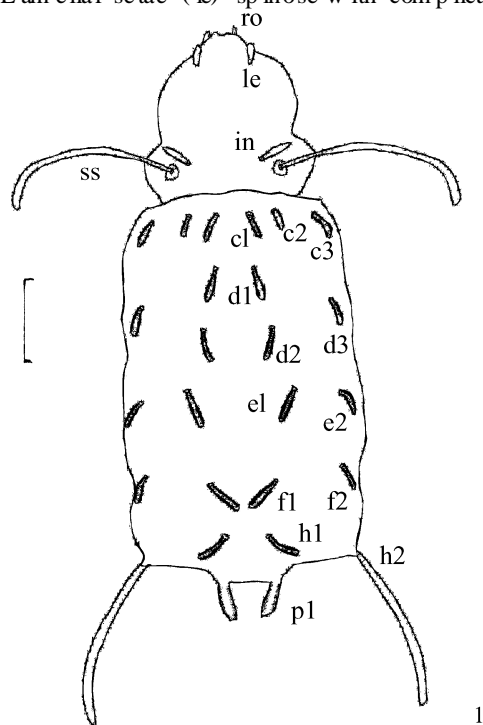
Measurements and color. Holotype, body length: 458, width: 385, ro 13, le 26, in: 26, ss 249.6, ro-ro 39, le-le 46.8, in-in: 93.6, bo-in: 18.2, bo-bo 111.8, q: 33.8, q: 26.0, q: 40.3, d<sub>1</sub>: 42.1, d<sub>2</sub>: 41.6, q: 41.6, q: 42.9, f<sub>1</sub>: 40.3, f<sub>2</sub>: 39, h<sub>1</sub>: 41.6, h<sub>2</sub>: 228.8, p<sub>1</sub>: 40.3, q-q: 44.2, q-q: 36.4, q-q: 52.0, d<sub>1</sub>-q: 67.6, d<sub>1</sub>-d<sub>1</sub>: 59.8, d<sub>1</sub>-d<sub>2</sub>: 65, d<sub>2</sub>-d<sub>2</sub>: 91.0, q-q: 104, q-q: 72.8, f<sub>1</sub>-f<sub>1</sub>: 62.4, f<sub>1</sub>-f<sub>2</sub>: 80.6, h<sub>1</sub>-h<sub>1</sub>: 78.0, p<sub>1</sub>-h<sub>1</sub>: 59.8, f<sub>1</sub>-f<sub>1</sub>: 54.6, p<sub>1</sub>-p<sub>1</sub>: 46.8, h<sub>1</sub>-h<sub>2</sub>: 41.6, h<sub>2</sub>-h<sub>2</sub>: 208; paratypes, body length: 437-520, width: 364-416; color: brown.

Prodorsum. Surface covered with granules and alveoli variable in size and form (Fig 3). Rostrum turned-down with split tip. Rostral setae (ro) (Fig 4) setiform and one-third as long as their mutual distance. Lamellar setae (le) spinose with complicated

hyaline integument, about half as long as their mutual distance (Fig 5). Lamellar apophysis absent. Interlamellar setae (in) club-shaped, as long as le but about 0.3 × as long as their mutual distance (Fig 6). Sensilli setiform sharpened with sparse barbs and long, about twice as long as distance between bothridia.

Relative lengths and distances of prodorsal setae: ss > bo-bo > in-in > le-le > ro-ro > le = in > bo-in > ro

Notogaster. Surface covered with granules and alveoli at dorsal side. Lateral sides of hysterosoma slightly convex, anterior margin straight. Notogastral setae bent, foliate. Five median pairs of notogastral setae (q, d<sub>1</sub>, d<sub>2</sub>, q, f<sub>1</sub>) (Fig 7) with same shape, spinose with complicated hyaline integument, q, q and q far from anterior margin, q about 1.3 × as long as q, but shorter than q, q inserted close to q, distance between q and q about three-fourth as long as that between q and q. Posterior border rounded with two apophyses for h<sub>2</sub> and no apophyses for p<sub>1</sub> (Fig 8), h<sub>2</sub> (Fig 9) very long, setiform, longer than all other notogastral setae, reaching half length of body; h<sub>1</sub> without apophyses, shorter than their mutual distance, and thick at base. Sharp of p<sub>1</sub> and h<sub>1</sub> asymmetric, middle rib distally multi-branched, and border frayed or scaly, h<sub>1</sub> situated front and outward p<sub>1</sub>.



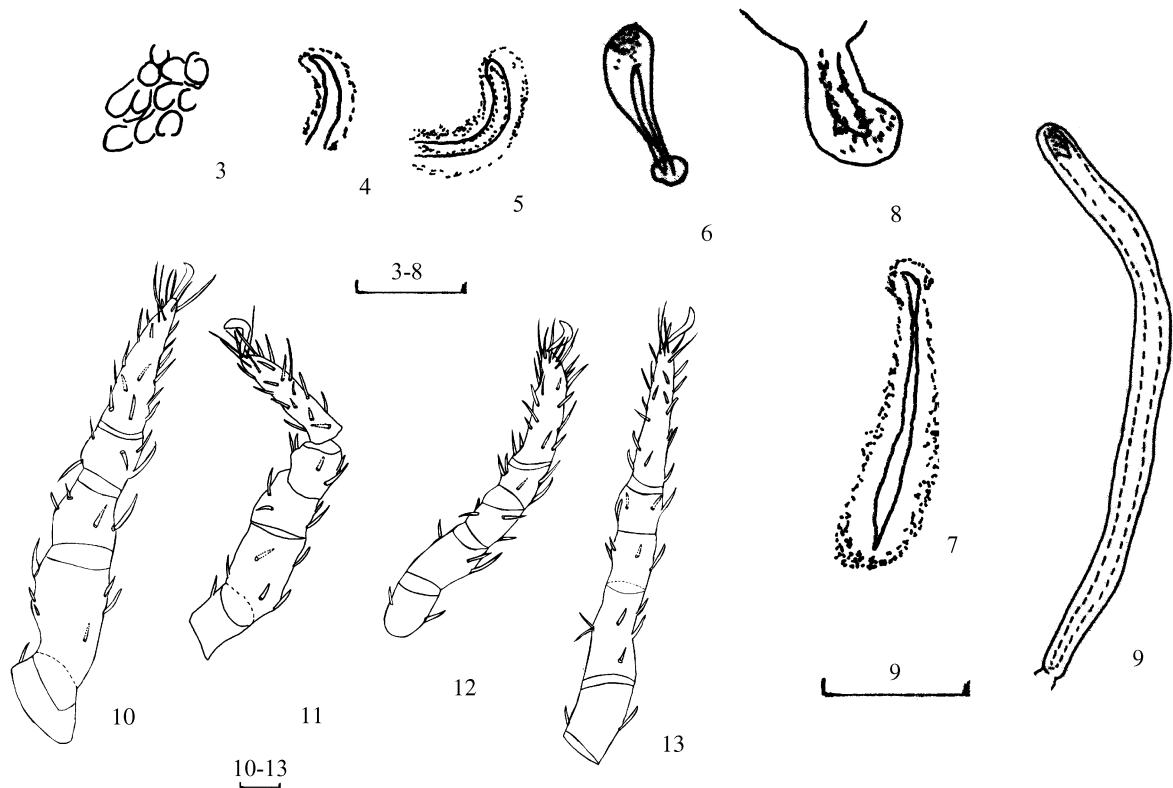
Figs 1-2 *Nothrus guiyangensis* sp. nov. 1. Dorsal view. 2. Ventral view. Scale bars = 50 μm.

Relative lengths and distances of notogastral setae:

$h_2 > h_2 - h_2 > q - q > d_2 - d_2 > f_1 - f_2 > h_1 - h_1 > q - q > d_1 - d_2 > f_1 - f_1 > d_1 - d_1 = p_1 - h_1 > f_1 - f_1 > q - q > p_1 - p_1 > q - q > q > d_1 > q = d_2 = h_1 - h_2 = h_1 > q = p_1 = f_1 > f_2 > q - q >$

$q > q.$

Ventral region. Nine pairs of genital setae present, rather short and thin, g inserted near lateral margin of genital plate, while setae g<sub>2</sub> to g<sub>9</sub> inserted



Figs. 3-13. *Nothrus guiyangensis* sp. nov. 3. Granules and alveoli of the prodorsum. 4. Seta  $ro$ . 5. Seta  $le$ . 6. Seta  $in$ . 7. Seta  $d_1$ . 8. Seta  $p_1$ . 9. Seta  $h_2$ . 10-13. Legs I, II, III, IV. Scale bars: 3-9 = 12.5  $\mu\text{m}$ , 10-13 = 50  $\mu\text{m}$ .

near inner margin of each plate. Aggenital setae absent. Anal and adanal setae two and three pairs respectively. Setal formula of epimerata: (6-4-4-5). All epimeral setae glabrous.

**Legs.** All legs monodactylous. Leg setation including famulus and solenidia: 1-6-4-5-22, 1-5-4-5-22, 2-3-4-5-22, 2-6-4-4-22.

**Holotype** adult (in alcohol), from humus, Huaxi Pool (26.44°N, 106.67°E; alt. 1107 m), 23 Mar 2008, collected by HU Zhan-Yu; Paratypes 8 adults, with same data as holotype.

This new species is similar to *Nothrus monticola* Hammer, 1961 and *N. meakanensis* Fujikawa, 1999, but can be distinguished from *N. monticola* by: 1) notogastral setae  $g_1$  about 1.3  $\times$  as long as  $g_2$ ; 2)  $h_1$  without apophyses; 3) lamellar hair foliate; and from *N. meakanensis* by: 1)  $h_1$  not reached the notogastral end; 2) rostral setae ( $ro$ ) one-third as long as their mutual distance; 3) rostral setae ( $ro$ ) without hyaline intersegment.

**Etymology.** The species is named after its type locality.

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## 中国贵州懒甲螨属 (蜱螨亚纲, 甲螨目, 懒甲螨科) 及一新种记述

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**摘要** 记述中国贵州懒甲螨科 Nothridae 懒甲螨属 Nothrus 5 种。编制了分种检索表, 其中包括 1 新种贵阳懒甲螨 *Nothrus guiyangensis* sp. nov.。新种与山地懒甲螨 *N. monticola* Hammer, 1961 和湿地懒甲螨 *N. meakanensis* 近似, 与山地懒甲螨的区别在于: 新种后背板毛  $c_1$  长度是  $c_2$  的 1.3 倍, 后背板刚毛  $h_1$  不着生于瘤突上, 梁毛的形状和后背板毛的形状相似, 都是叶状。而后者毛  $c_2$  长度是  $c_1$  的一半, 毛  $h_1$  着生于

瘤突上, 叶毛呈刚毛状, 而后背板毛呈叶状。与湿地懒甲螨的区别在于,  $h_1$  不达于后背板的末端, 吻毛无透明的角质鞘, 且长度只有两吻毛着生基部间距的 1/3, 而湿地懒甲螨的  $h_1$  超过后背板的末缘, 吻毛具有透明的角质鞘, 且长度只比两吻毛着生基部间距略短。所有标本均保存于贵州大学昆虫研究所标本馆。

**关键词** 蜱螨亚纲, 甲螨目, 懒甲螨科, 懒甲螨属, 新种.

**中图分类号** Q 959.226

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